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| This document describes our devel<br>postsecondary (2-year) colleges. The<br>Youth (NLSY97).          | opment of national norms for stud<br>ne norms are based on data collect     | ents in the 10th, 11th, and 12th grades as well as ed as part of the National Longitudinal Survey of                                |
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## Norming Tables for the Student Testing Program (STP97)

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# **Norming Tables for the Student Testing Program (STP97)**

Dec 10, 2003

Catherine M. Hiatt and William H. Sims

This annotated briefing describes the development of the norming tables for the Student Testing Program (STP).

#### **Background**



- The STP provides a form of ASVAB to high schools and postsecondary schools for use in career exploration
- National norms are provided for students in:
  - Grades 10, 11, 12
  - Postsecondary (2-year) colleges
- Current STP norms are based on data from PAY80 and are thought to be dated
- Current norms are thought to be needed

The Department of Defense sponsors the Student Testing Program (STP), which provides a form of the Armed Services Vocational Aptitude Battery (ASVAB) for use in high schools and postsecondary schools. The test scores are used for career exploration in the schools and may also be used to enlist in the armed forces.

National norms are provided for students in grades 10, 11, and 12 as well as for postsecondary (2-year) colleges. These norms enable students to know how their scores compare with a national sample of youth in their particular grade.

These updated norming tables are based on a more current administration of the ASVAB. This data collection was done by the National Opinion Research Center (NORC) and is part of the National Longitudinal Survey of Youth (NLSY97). It was completed in 1997 as part of a joint DOL/DOD effort known as the Profile of American Youth 1997 (PAY97).

| Greek Staderi<br>12th Cr. Mady, (from: 282)<br>838: 050 18 1254<br>Tayl Cover: Jul 5, 2502<br>Ang Server II.<br>Operation III.   Ang sta 1884     |                              | SV/       | AB S                                             | UM        | MA | A F                        | <b>?</b> \     | <u> </u>                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----------|--------------------------------------------------|-----------|----|----------------------------|----------------|---------------------------------|
| ASVAB Results                                                                                                                                     | Berter<br>Bierderf<br>Storen | 12th Grad | se Standard Sci                                  | ore Bands |    | Pers                       | MOSE F         | 100                             |
| Career Exploration Scores<br>Verted Sicts<br>Math Skits<br>Science and Fechnical Skits                                                            | 62<br>62                     | 30 30     | S20                                              |           |    | 83<br>84<br>77             | 54<br>57<br>97 | 83<br>85<br>87                  |
| ASVAR Teats General Schron (CS) Arithmetic Recogning (AP) Word Knowledge (AV)                                                                     | 64<br>64<br>88               |           | SAC<br>SAC                                       |           |    | 9.3<br>4:3<br>19           | 95<br>93<br>82 | 94<br>51<br>50                  |
| Paragraph Comprehension (PC) Mathematics Knowledge (MK) Electronics Informations &6 Auto and Shop Information (ASI Mechanical Comprehension (ASI) | 69<br>69<br>69<br>99         |           | \$270(3<br>890 t<br>9000t 11<br>9000 t<br>9000 t |           |    | 2D<br>7A<br>63<br>67<br>67 | B1<br>B5<br>B8 | 877<br>807<br>812<br>813<br>813 |

This slide shows a notional ASVAB Summary Report that is made available to students taking the High School version of ASVAB. It gives results for three composites and eight subtests as listed on the left side of the slide.

The scores are reported in two metrics: grade-specific standard scores (shown on the left) and grade-specific percentile scores (shown on the right). The grade-specific percentile scores are tabulated separately based on norms by gender as well as for combined genders.

The score bands are based on grade-specific norms. The "X" denotes the grade-specific standard score, and the grey area denotes one standard error of uncertainty about the value.

In this briefing, we will describe the STP norms that provide the basis for the numbers in these reports.

### Norming samples



- Norms are developed for two subsamples of the PAY97:
  - -Grades 10, 11, and 12 in fall 1997 (STP sample)
  - Postsecondary (2-year college)
     students (part of the ETP sample)

We have developed norming tables for students in the 10<sup>th</sup>, 11<sup>th</sup>, and 12<sup>th</sup> grades as well as for postsecondary students.

#### Selection for grades 10, 11, and 12



- STP sample with poststratification weights by gender and grade developed by NORC
  - Sample found to be representative of the population1
  - Score improvement consistent with NAEP results1
- Selections
  - Eligs ='s'
  - Wt6s >0
  - Fgrade97=10, 11, or 12
  - All subtests scores > 0
  - 4,629 cases (weighted cases: 11,388,783)
- 1. Sims and Hiatt, 2002

We selected a STP sample that had been poststratification weighted by NORC on gender and grade. A total of 4,629 cases were found with the proper eligibility code, positive case weights, all subtest scores greater than zero, and expected grade in fall 1997 of 10, 11, or 12.

In another document, we examined the distribution of aptitude-correlated demographics (age, gender, race, education, and mother's education) for this sample. The distributions agree well with those expected from the Current Population Survey (CPS). We concluded that the STP sample as weighted by NORC is representative of the national population in grades 10, 11, and 12.

As a further check, we calculated the change in math and verbal scores for 17-year-olds between PAY80 and PAY 97 and compared this with the change in similar scores from the National Assessment of Educational Progress (NAEP) from the same time period. The changes in PAY and in the external benchmark were almost identical. This further increases our confidence in the PAY97 scores.

<sup>1.</sup> CNA Annotated Briefing, D0007499.A1, An Evaluation of the Student Testing Program (STP97) Norming Sample, Sponsor Review Version, Dec 2002.

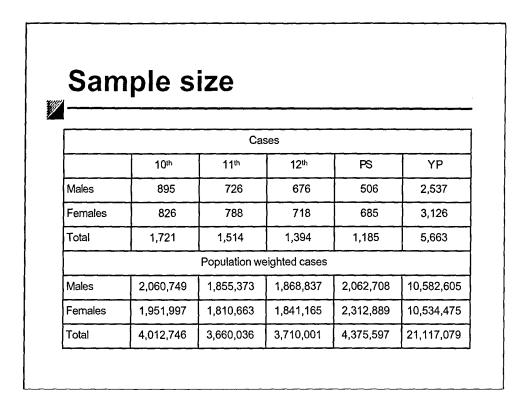
## Selection for 2-year college (aka postsecondary schools)

- ETP sample with poststratification weights by age, gender, race/ethnicity, and respondent's education developed by Stanford University<sup>2</sup>
- · Selections:
  - Eligeout = 'e'
  - fspoarge >0
  - 1,185 cases (weighted cases: 4,375,597)
  - Online questionnaire, question #3
    - What type of school are you now attending, or did you last attend? Option 7 (2-yr college)
- Parallel selections were made in the development of STP80
- 2. MaCurdy and Vytlacil

This slide describes the data selections we made to get the 2-year college sample. These selections are parallel to those used in developing STP80 norms. The selections yield 1,185 persons 18 to 23 years of age who are, or have been, enrolled in 2-year colleges as of October 1997.

In this document, we will be using the PAY97/ETP data for STP persons in 2-year colleges. Consequently, we used the PAY97 case weights (fspoarge) developed by Stanford University.<sup>2</sup>

<sup>2.</sup> T. MaCurdy and E. Vytlacil, "AFQT Norms and the PAY97," Stanford University, Department of Economics, 2002



This chart shows the sample size for each of the subgroups that we will be using in this analysis.

### STP norming tables



- Means and standard deviations from the ETP sample<sup>1</sup> in PAY97 are used to define standard scores
- Composite scores are the sums of subtest standard scores and are standardized to (50,10) in ETP:
  - Math Skills = AR+MK
  - Verbal Skills = VE
  - Science and Technical Skills = GS+EI+MC
- Grade- and gender-specific percentile score equivalents to standard scores are developed in the STP sample and are shown in the appendix
- Grade-specific means and standard deviations are developed in the STP97 sample for use in calculating grade-specific standard scores

1. 5,663 youth age 18 to 23. The population weighted sample is 21,117,079

The means and standard deviations from the ETP sample in the Profile of American Youth 1997 (PAY97) are used to define subtest standard scores.<sup>3</sup>

The sums of standard scores are then used to define the STP composites (mean of 50, standard deviation of 10) in the ETP sample:

Math Skills = AR+MK

Verbal Skills = VE

Science and Technical Skills = GS+EI+MC

Percentile score equivalents for the subtests and composites are determined separately for grades 10, 11, and 12 as well as the postsecondary sample. These are shown in the appendix.

Grade-specific means and standard deviations are calculated in the STP97 sample for use in calculating grade-specific standard scores.

<sup>3.</sup> The ETP subsample consists of 5,663 youth age 18 to 23. The weighted sample size is 21,117,079.

| Subtest means and standard |
|----------------------------|
| deviations by grade        |

| _                             |        |        |        | Gra    | de     |        |         |        |
|-------------------------------|--------|--------|--------|--------|--------|--------|---------|--------|
| ASVAB subtest                 | 10     | th     | 11     | h      | 12     | ħ      | Postsed | ondary |
|                               | Mean   | STD    | Mean   | STD    | Mean   | STD    | Mean    | STD    |
| General Science (GS)          | 46.256 | 9.451  | 48.531 | 9.542  | 49.479 | 9.724  | 50.198  | 8.747  |
| Arithmetic Reasoning (AR)     | 45.204 | 10.289 | 47.793 | 10.634 | 48.939 | 10.575 | 50.825  | 8.269  |
| Word Knowledge (WK)           | 43.469 | 9.409  | 45.836 | 9.511  | 47.519 | 9.075  | 50.375  | 8.846  |
| Paragraph Comprehension (PC)  | 44.010 | 11.144 | 46.503 | 10.798 | 48.050 | 10.380 | 50.784  | 8.778  |
| Math Knowledge (MK)           | 47.297 | 9.290  | 50.149 | 9.676  | 51.377 | 9.833  | 51.661  | 7.932  |
| Mechanical Comprehension (MC) | 45.589 | 10.052 | 47.354 | 9.879  | 48.491 | 9.874  | 49.825  | 9.004  |
| Auto & Shop Information (AS)  | 43.153 | 8.252  | 44.903 | 8.573  | 46.239 | 9.144  | 49.804  | 9.640  |
| Electronic Information (EI)   | 43.763 | 9.387  | 45.447 | 9.144  | 47.425 | 9.594  | 50.489  | 9.413  |
| Assembling Objects (AO)       | 46.965 | 9.791  | 48.563 | 10.263 | 49.399 | 9.978  | 50.177  | 9.729  |
| Verbal (VE)                   | 43.301 | 9.966  | 45.863 | 9.932  | 47.580 | 9.465  | 50.584  | 8.595  |

This chart shows the ASVAB subtest score means and standard deviations for grades 10, 11, 12, and postsecondary youth. These data can be used to generate grade-specific subtest standard scores.

# STP composites in youth population<sup>1</sup>

|                              | standa  | f subtest<br>rd scores<br>SS)  | standar | nposite<br>d scores <sup>2</sup><br>(SS) |
|------------------------------|---------|--------------------------------|---------|------------------------------------------|
| STP composite                | Mean    | Standard<br>deviation<br>(std) | Mean    | Standard<br>deviation<br>(std)           |
| Math Skills                  | 100.004 | 18.950                         | 49.995  | 10.011                                   |
| Verbal Skills                | 50.003  | 9.995                          | 50.003  | 9.995                                    |
| Science and Technical Skills | 149.998 | 26.817                         | 50.001  | 9.993                                    |

- 1. 5,663 cases, population weighted 21,117,079
- 2. CSS= RND[50+(10/std)(SSS mean SSS)]

The three STP composites were defined in the ETP population as sums of subtest standard scores. The means and standard deviations of these sums are shown in this table. These sums were standardized to a mean of 50 and a standard deviation of 10 in the ETP population.

# Composite means and standard deviations by grade

|                                 | Grade  |       |        |        |        |        |         |        |  |  |  |  |  |
|---------------------------------|--------|-------|--------|--------|--------|--------|---------|--------|--|--|--|--|--|
|                                 | 100    | h     | 11     | th     | 1:     | 2th    | Postsec | ondary |  |  |  |  |  |
| ASVAB Composite                 | Mean   | STD   | Mean   | STD    | Mean   | STD    | Mean    | STD    |  |  |  |  |  |
| Math Skills                     | 46.027 | 9.776 | 48.902 | 10.194 | 50.162 | 10.241 | 51.324  | 7.905  |  |  |  |  |  |
| Verbal Skills                   | 43.301 | 9.966 | 45.863 | 9,932  | 47.580 | 9.465  | 50.584  | 8.595  |  |  |  |  |  |
| Science and Technical<br>Skills | 44.632 | 9.615 | 46.752 | 9,493  | 48.280 | 9.760  | 50.183  | 8.915  |  |  |  |  |  |

This chart shows the ASVAB composite score means and standard deviations for grades 10, 11, 12, and postsecondary youth. These data can be used to generate grade-specific composite standard scores.

## Excerpts from percentile tables: (corresponding to SS=50)

| T   | 1  | 0 <sup>th</sup> grac | le | 1  | 1 <sup>th</sup> grad | e  | 1  | 2 <sup>th</sup> grad | de | Pos | tsecon | ary | ΥP |
|-----|----|----------------------|----|----|----------------------|----|----|----------------------|----|-----|--------|-----|----|
|     | М  | F                    | С  | М  | F                    | С  | М  | F                    | С  | М   | F      | С   |    |
| GS  | 63 | 73                   | 68 | 52 | 61                   | 57 | 46 | 64                   | 55 | 42  | 60     | 51  | 52 |
| AR  | 67 | 75                   | 71 | 60 | 64                   | 62 | 46 | 67                   | 57 | 39  | 54     | 47  | 51 |
| WK  | 75 | 78                   | 77 | 66 | 69                   | 67 | 55 | 66                   | 60 | 46  | 51     | 49  | 50 |
| PC  | 70 | 65                   | 68 | 60 | 57                   | 59 | 53 | 53                   | 53 | 41  | 39     | 40  | 45 |
| MK  | 64 | 56                   | 60 | 51 | 45                   | 48 | 40 | 48                   | 44 | 41  | 43     | 42  | 50 |
| МС  | 60 | 75                   | 67 | 51 | 71                   | 61 | 41 | 71                   | 56 | 35  | 68     | 52  | 50 |
| AS  | 71 | 96                   | 83 | 59 | 93                   | 76 | 53 | 91                   | 72 | 34  | 78     | 57  | 56 |
| EI  | 69 | 90                   | 79 | 64 | 88                   | 76 | 49 | 85                   | 67 | 32  | 75     | 55  | 54 |
| AO  | 63 | 56                   | 60 | 54 | 50                   | 52 | 47 | 51                   | 49 | 44  | 48     | 46  | 46 |
| VE  | 75 | 74                   | 75 | 65 | 65                   | 65 | 56 | 61                   | 58 | 45  | 49     | 47  | 48 |
| MS  | 66 | 66                   | 66 | 54 | 53                   | 54 | 43 | 52                   | 48 | 39  | 46     | 43  | 50 |
| VS  | 75 | 74                   | 75 | 65 | 65                   | 65 | 56 | 61                   | 58 | 45  | 49     | 47  | 48 |
| STS | 64 | 83                   | 73 | 56 | 78                   | 67 | 43 | 76                   | 60 | 34  | 69     | 53  | 51 |

This slide shows excerpts from the percentile tables. The slide is intended to give the reader a quick feel for the percentile tables.

For each subtest, we show the percentile corresponding to a subtest (or composite) standard score of 50 for each of the grade groups and for male (M), female (F), and combined genders (C). For example, a subtest standard score of 50 on the GS subtest corresponds to the 63 percentile of performance for male 10<sup>th</sup> grade students. The same standard score of 50 on GS also corresponds to the 52<sup>nd</sup> percentile of the youth population (YP).

**Appendix: STP Norming Tables** 

Table A-1. Male (M), Female (F), Combined-Gender (C), and Youth Population (YP) Norms for the ASVAB Subtest Assembling Objects (AO)

| <u>sss</u> | <u>1</u><br>M | 0th gra  | i <u>de</u><br>C | <u>1</u><br>M | 1th gra<br><u>F</u> | de<br>C  | <u>1</u><br><u>M</u> | 2th gra<br><u>F</u> | ide<br>C | <u>Po:</u><br><u>M</u> | stsecoi<br><u>F</u> | ndary<br><u>C</u> | YP       |
|------------|---------------|----------|------------------|---------------|---------------------|----------|----------------------|---------------------|----------|------------------------|---------------------|-------------------|----------|
| 26         | 1             | 1        | 1                | 1             | 1                   | 1        | 1                    | 1                   | 1        | 1                      | 1                   | 1                 | 1        |
| 27<br>28   | 1<br>2        | 1<br>2   | 1<br>2           | 1<br>2        | 2<br>3              | 1<br>2   | 1<br>1               | 1<br>1              | 1<br>1   | 1<br>1                 | 1<br>1              | 1<br>1            | 1<br>1   |
| 29         | 3             | 4        | 4                | 3             | 3                   | 3        | 2                    | 2                   | 2        | 1                      | 2                   | 2                 | 2        |
| 30         | 5             | 6        | 5                | 5             | 5                   | 5        | 4                    | 3                   | 3        | 2                      | 3                   | 3                 | 3        |
| 31         | 7             | 7        | 7                | 7             | 7                   | 7        | 6                    | 4                   | 5        | 4                      | 5                   | 4                 | 5        |
| 32<br>33   | 8<br>11       | 9<br>10  | 9<br>11          | 9<br>11       | 8<br>10             | 9<br>10  | 8<br>10              | 6<br>8              | 7<br>9   | 5<br>7                 | 6<br>8              | 6<br>7            | 6<br>8   |
| 34         | 14            | 12       | 13               | 13            | 11                  | 12       | 11                   | 9                   | 10       | 9                      | 9                   | 9                 | 9        |
| 35         | 17            | 13       | 15               | 16            | 12                  | 14       | 12                   | 11                  | 11       | 10                     | 12                  | 11                | 11       |
| 36         | 20            | 15       | 18               | 17            | 14                  | 15       | 13                   | 12                  | 13       | 11                     | 13                  | 12                | 12       |
| 37         | 22            | 17       | 19               | 20            | 16                  | 18       | 14                   | 13                  | 14       | 12                     | 14                  | 13                | 13       |
| 38<br>39   | 25<br>28      | 19<br>21 | 22<br>24         | 22<br>23      | 18<br>20            | 20<br>22 | 16<br>18             | 15<br>18            | 16<br>18 | 13<br>13               | 16<br>17            | 14<br>16          | 15<br>17 |
| 39<br>40   | 20<br>29      | 24       | 24<br>27         | 23<br>26      | 22                  | 24       | 20                   | 22                  | 21       | 15                     | 20                  | 18                | 19       |
| 41         | 34            | 26       | 30               | 28            | 25                  | 26       | 23                   | 24                  | 23       | 18                     | 22                  | 20                | 21       |
| 42         | 38            | 29       | 34               | 31            | 27                  | 29       | 25                   | 27                  | 26       | 20                     | 25                  | 23                | 24       |
| 43         | 42            | 33       | 38               | 34            | 29                  | 32       | 28                   | 31                  | 29       | 22                     | 27                  | 25                | 27       |
| 44<br>45   | 47<br>50      | 37<br>40 | 42<br>45         | 37<br>40      | 32<br>35            | 35<br>38 | 31<br>34             | 35<br>37            | 33<br>35 | 24<br>27               | 33<br>34            | 29<br>31          | 30<br>33 |
| 46         | 53            | 43       | 48               | 42            | 38                  | 40       | 36                   | 40                  | 38       | 30                     | 36                  | 33                | 35       |
| 47         | 55            | 47       | 51               | 45            | 41                  | 43       | 39                   | 43                  | 41       | 31                     | 38                  | 35                | 38       |
| 48         | 57            | 51       | 54               | 48            | 45                  | 46       | 42                   | 46                  | 44       | 36                     | 41                  | 39                | 40       |
| 49<br>50   | 60<br>63      | 54<br>56 | 57<br>60         | 52<br>54      | 48<br>50            | 50<br>52 | 45<br>47             | 49<br>51            | 47<br>49 | 39<br>44               | 45<br>48            | 42<br>46          | 43<br>46 |
| 51         | 66            | 61       | 63               | 57            | 55                  | 56       | 50                   | 55                  | 53       | 48                     | 51                  | 50                | 50       |
| 52         | 68            | 64       | 67               | 60            | 59                  | 59       | 52                   | 59                  | 56       | 51                     | 54                  | 52                | 53       |
| 53         | 71            | 69       | 70               | 62            | 61                  | 62       | 55                   | 64                  | 59       | 56                     | 59                  | 57                | 58       |
| 54<br>55   | 74<br>77      | 72<br>77 | 73<br>77         | 66            | 66<br>71            | 66       | 59                   | 68<br>74            | 64       | 59                     | 64                  | 61<br>66          | 62<br>67 |
| 55<br>56   | 77<br>81      | 82       | 77<br>81         | 68<br>73      | 71<br>76            | 70<br>74 | 65<br>68             | 74<br>77            | 69<br>73 | 64<br>69               | 68<br>75            | 66<br>72          | 67<br>72 |
| 57         | 84            | 85       | 85               | 77            | 80                  | 79       | 72                   | 82                  | 77       | 74                     | 80                  | 77                | 76       |
| 58         | 87            | 89       | 88               | 81            | 85                  | 83       | 76                   | 86                  | 81       | 78                     | 85                  | 82                | 80       |
| 59         | 89            | 91       | 90               | 84            | 87                  | 85       | 80                   | 87                  | 84       | 80                     | 89                  | 85                | 83       |
| 60<br>61   | 91<br>94      | 94<br>95 | 92<br>94         | 87<br>89      | 89<br>91            | 88<br>90 | 83<br>86             | 90<br>92            | 87<br>89 | 82<br>86               | 91<br>93            | 87<br>90          | 86<br>88 |
| 62         | 95            | 96       | 95               | 93            | 93                  | 93       | 89                   | 95                  | 92       | 89                     | 95                  | 92                | 91       |
| 63         | 97            | 97       | 97               | 96            | 95                  | 95       | 91                   | 96                  | 94       | 91                     | 96                  | 93                | 93       |
| 64         | 98            | 98       | 98               | 97            | 96                  | 97       | 94                   | 97                  | 95       | 92                     | 97                  | 95                | 94       |
| 65<br>66   | 98<br>99      | 99<br>99 | 99<br>99         | 98<br>98      | 97<br>98            | 97<br>98 | 95<br>98             | 98<br>99            | 97<br>98 | 93<br>95               | 97<br>98            | 95<br>96          | 96<br>97 |
| 67         | 99            | 99       | 99               | 99            | 99                  | 99       | 98                   | 99                  | 99       | 95<br>97               | 99                  | 98                | 98       |
| 68         | 99            | 99       | 99               | 99            | 99                  | 99       | 99                   | 99                  | 99       | 98                     | 99                  | 98                | 98       |
| 69         | 99            | 99       | 99               | 99            | 99                  | 99       | 99                   | 99                  | 99       | 99                     | 99                  | 99                | 99       |

Table A-2. Male (M), Female (F), Combined-Gender (C), and Youth Population (YP) Norms for the ASVAB Subtest Arithmetic Reasoning (AR)

| <u>1</u><br>M                          | 0th gra<br>E                                                                          | <u>de</u><br><u>C</u>                                                                                                                                                    | <u>1</u><br>M                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1th gra<br><u>E</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | de<br><u>C</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <u>1</u> :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2th gra<br><u>F</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <u>de</u><br><u>C</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Pos<br>M                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | tsecon<br><u>F</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | dary<br><u>C</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <u>YP</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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|                                        |                                                                                       |                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1th gra<br>E 1222333445566789101131518915223361440483688888892                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                     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                                                                                           | YP 1 1 1 1 1 2 2 2 2 3 3 3 4 4 5 5 6 7 8 9 11 15 17 0 3 6 9 3 3 7 4 4 7 1 6 6 6 8 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 94<br>96<br>96<br>97<br>98<br>99<br>99 | 96<br>98<br>98<br>99<br>99<br>99                                                      | 95<br>97<br>97<br>98<br>99<br>99<br>99                                                                                                                                   | 88<br>90<br>92<br>94<br>95<br>96<br>97<br>97                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 92<br>93<br>95<br>97<br>98<br>99<br>99                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 90<br>92<br>94<br>95<br>97<br>98<br>98<br>99                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 84<br>86<br>87<br>91<br>93<br>95<br>96<br>97                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 92<br>93<br>95<br>96<br>98<br>99<br>99                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 88<br>89<br>91<br>93<br>96<br>97<br>98<br>98                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 87<br>89<br>91<br>93<br>95<br>97<br>98<br>99                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 93<br>94<br>96<br>97<br>98<br>98<br>99                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 90<br>91<br>93<br>95<br>96<br>98<br>99                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 85<br>88<br>90<br>91<br>93<br>95<br>96<br>97<br>98<br>98                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                        | M 12233456678891113456812228133715058370469224666789999999999999999999999999999999999 | M E 1 1 2 2 3 3 3 4 5 6 6 7 8 8 8 9 10 11 12 12 22 5 8 8 9 9 10 11 12 12 22 25 28 31 33 36 41 45 49 50 55 66 63 77 74 76 82 88 89 91 91 91 91 91 91 91 91 91 91 91 91 91 | 1 1 1 2 1 2 2 3 3 2 3 3 4 2 3 3 5 3 4 4 2 3 3 5 5 3 4 4 6 3 5 5 7 8 6 6 3 5 7 8 6 6 7 9 7 8 8 9 10 8 9 9 10 13 10 11 14 11 12 15 12 13 16 14 15 12 13 16 14 15 12 13 16 14 15 12 13 16 14 15 12 13 16 14 15 12 13 16 14 15 12 13 16 14 15 12 13 16 14 15 18 17 17 17 21 19 20 22 22 22 22 22 25 26 25 28 29 29 31 31 31 33 36 35 37 41 39 41 46 43 45 49 47 50 54 52 55 60 57 58 66 62 63 71 67 75 71 70 79 74 82 78 76 84 80 79 86 83 82 88 85 90 87 97 97 97 97 97 97 97 97 97 97 97 97 97 | M         E         C         M           1         1         1         1         1           2         1         2         1         2         1           2         1         2         1         2         1           3         2         2         2         3         3           4         2         3         3         3         3         4         3         6         3         4         3         6         3         4         3         6         3         4         3         6         3         5         4         7         4         6         4         4         8         5         7         5         9         7         8         5         5         10         8         9         6         11         10         11         7         14         11         12         8         9         6         11         10         11         7         14         11         12         13         9         16         14         15         11         18         17         17         12         21         19         20         13         22 | M         E         C         M         E           1         1         1         1         1         1           2         1         2         1         2         2         2         2         2         2         2         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         4         3         3         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         5         8         6         7         5         5         6         9         7         8         5 | M         E         C         M         E         C           1         1         1         1         1         1           2         1         2         1         2         1           2         1         2         1         2         2           3         2         2         2         2         2           3         2         3         3         3         3           5         3         4         3         3         3           6         3         4         3         4         4           7         4         6         4         5         4           8         5         7         5         5         5           8         6         7         5         6         5           9         7         8         5         6         6           10         8         9         6         7         7           11         9         10         6         8         7           13         10         11         7         9         8           14         11 | M         E         C         M         E         C         M           1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1 | M         E         C         M         E         C         M         E           1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1 | M         E         C         M         E         C         M         E         C           1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1 | M         E         C         M         E         C         M           1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1 | M         E         C         M         E         C         M         E         C         M         E           1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1 | M         E         C         M         E         C         M         E         C         M         E         C         M         E         C         M         E         C         M         E         C         M         E         C         M         E         C         M         E         C         M         E         C         M         E         C         M         E         C         M         E         C         M         E         C         M         E         C         M         E         C         M         E         C         M         E         C         M         E         C         M         E         C         M         E         C         M         B         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         1         1         1         1 |

Table A-3. Male (M), Female (F), Combined-Gender (C), and Youth Population (YP) Norms for the ASVAB Subtest Auto Shop (AS)

| <u>sss</u>           | <u>л</u><br>М | 0th gra  | ide<br>C | <u>1</u><br><u>M</u> | 1th gra  | ide<br>C | <u></u>  | 2th gra  | ide<br>C | <u>Po</u><br><u>M</u> | stsecor<br>E | ndary<br><u>C</u> | ΥP       |
|----------------------|---------------|----------|----------|----------------------|----------|----------|----------|----------|----------|-----------------------|--------------|-------------------|----------|
| 25<br>26             | 1<br>2        | 1<br>2   | 1<br>2   | 1<br>1               | 1<br>1   | 1        | 1        | 1<br>1   | 1<br>1   | 1<br>1                | 1            | 1<br>1            | 1<br>1   |
| 27                   | 2             | 3        | 2        | 1                    | 1        | 1        | 1        | 1        | 1        | 1                     | 1            | 1                 | 1        |
| 28                   | 2<br>3        | 4        | 3        | 1                    | 2        | 1        | 1        | 1        | 1        | 1                     | 1            | 1                 | 1        |
| 29<br>30             | 4             | 5<br>6   | 4<br>5   | 2<br>2               | 2<br>4   | 2<br>3   | 2<br>2   | 2<br>3   | 2<br>2   | 1<br>1                | 1<br>2       | 1<br>1            | 1<br>1   |
| 31                   | 6             | 7        | 6        | 3                    | 6        | 4        | 2        | 3        | 3        | 1                     | 2            | 1                 | 2        |
| 32                   | 6             | 10       | 8        | 4                    | 7        | 6        | 2        | 5        | 4        | 1                     | 3            | 2                 | 2        |
| 33<br>34             | 8<br>10       | 12<br>17 | 10<br>13 | 5<br>6               | 10<br>13 | 8<br>10  | 3<br>4   | 8<br>11  | 5<br>7   | 1<br>1                | 4<br>5       | 2<br>3            | 3        |
| 3 <del>4</del><br>35 | 12            | 21       | 16       | 7                    | 18       | 13       | 6        | 13       | 9        | 1                     | 8            | 4                 | 4<br>6   |
| 36                   | 14            | 26       | 20       | 9                    | 22       | 15       | 7        | 17       | 12       | 1                     | 11           | 6                 | 7        |
| 37                   | 17            | 31       | 24       | 11                   | 26       | 19       | 9        | 23       | 16       | 2                     | 14           | 8                 | 9        |
| 38                   | 20            | 37       | 28       | 13                   | 31       | 22       | 11       | 28       | 20       | 3                     | 18           | 11                | 12       |
| 39<br>40             | 24<br>26      | 44<br>52 | 34<br>39 | 15<br>20             | 38<br>45 | 26<br>32 | 15<br>17 | 33<br>40 | 24<br>28 | 4<br>5                | 21<br>26     | 13<br>16          | 14<br>18 |
| 41                   | 30            | 59       | 44       | 23                   | 52       | 37       | 19       | 46       | 32       | 7                     | 32           | 20                | 20       |
| 42                   | 33            | 66       | 49       | 26                   | 59       | 42       | 21       | 53       | 37       | 9                     | 37           | 24                | 24       |
| 43                   | 38            | 73       | 55<br>64 | 30                   | 65       | 47       | 24       | 60       | 42       | 11                    | 41           | 27                | 27       |
| 44<br>45             | 44<br>48      | 78<br>82 | 61<br>64 | 35<br>38             | 71<br>77 | 53<br>58 | 27<br>31 | 66<br>72 | 46<br>51 | 13<br>16              | 47<br>51     | 31<br>35          | 31<br>35 |
| 46                   | 54            | 85       | 69       | 43                   | 81       | 61       | 35       | 77       | 56       | 20                    | 57           | 39                | 39       |
| 47                   | 59            | 88       | 73       | 48                   | 85       | 66       | 38       | 83       | 60       | 23                    | 61           | 43                | 43       |
| 48<br>49             | 63<br>68      | 92<br>94 | 77<br>80 | 51<br>55             | 89<br>91 | 70<br>73 | 42<br>47 | 85<br>88 | 63<br>67 | 28<br>31              | 68<br>72     | 49<br>53          | 47<br>51 |
| 50                   | 71            | 96       | 83       | 59                   | 93       | 76       | 53       | 91       | 72       | 34                    | 78           | 57                | 56       |
| 51                   | 74            | 97       | 85       | 63                   | 95       | 79       | 56       | 93       | 74       | 37                    | 81           | 60                | 59       |
| 52                   | 76            | 98       | 87       | 68                   | 96       | 82       | 60       | 97       | 78       | 41                    | 86           | 65                | 63       |
| 53<br>54             | 81<br>84      | 99<br>99 | 90<br>91 | 71<br>74             | 98<br>98 | 84<br>86 | 64<br>68 | 98<br>98 | 81<br>83 | 46<br>49              | 89<br>92     | 69<br>72          | 66<br>69 |
| 55                   | 85            | 99       | 92       | 78                   | 99       | 88       | 72       | 99       | 85       | 54                    | 94           | 75                | 72       |
| 56                   | 88            | 99       | 93       | 81                   | 99       | 90       | 76       | 99       | 87       | 57                    | 96           | 78                | 75       |
| 57<br>58             | 90<br>91      | 99<br>99 | 95<br>95 | 84                   | 99       | 92       | 78<br>81 | 99<br>99 | 89<br>91 | 62<br>66              | 97<br>98     | 80<br>83          | 78<br>80 |
| 59                   | 93            | 99       | 96       | 86<br>89             | 99<br>99 | 93<br>94 | 83       | 99       | 91       | 69                    | 99           | 84                | 82       |
| 60                   | 94            | 99       | 97       | 90                   | 99       | 95       | 86       | 99       | 93       | 71                    | 99           | 86                | 84       |
| 61                   | 96            | 99       | 98       | 92                   | 99       | 96       | 88       | 99       | 94       | 74                    | 99           | 87                | 86       |
| 62<br>63             | 97<br>97      | 99<br>99 | 98<br>99 | 93<br>94             | 99<br>99 | 96<br>97 | 89<br>91 | 99<br>99 | 95<br>95 | 76<br>81              | 99<br>99     | 89<br>91          | 88<br>90 |
| 64                   | 98            | 99       | 99       | 96                   | 99       | 98       | 92       | 99       | 96       | 84                    | 99           | 92                | 91       |
| 65                   | 98            | 99       | 99       | 96                   | 99       | 98       | 93       | 99       | 96       | 86                    | 99           | 93                | 93       |
| 66                   | 98            | 99       | 99       | 98                   | 99       | 99       | 94       | 99       | 97       | 89                    | 99           | 95                | 94       |
| 67<br>68             | 99<br>99      | 99<br>99 | 99<br>99 | 98<br>99             | 99<br>99 | 99<br>99 | 95<br>96 | 99<br>99 | 98<br>98 | 91<br>92              | 99<br>99     | 96<br>96          | 95<br>96 |
| 69                   | 99            | 99       | 99       | 99                   | 99       | 99       | 96       | 99       | 98       | 93                    | 99           | 97                | 96       |
| 70                   | 99            | 99       | 99       | 99                   | 99       | 99       | 97       | 99       | 98       | 94                    | 99           | 97                | 97       |
| 71<br>70             | 99            | 99       | 99       | 99                   | 99       | 99       | 97       | 99       | 99       | 94                    | 99           | 97                | 98       |
| 72<br>73             | 99<br>99      | 99<br>99 | 99<br>99 | 99<br>99             | 99<br>99 | 99<br>99 | 98<br>99 | 99<br>99 | 99<br>99 | 95<br>96              | 99<br>99     | 97<br>98          | 98<br>98 |
| 74                   | 99            | 99       | 99       | 99                   | 99       | 99       | 99       | 99       | 99       | 98                    | 99           | 99                | 99       |
| 75                   | 99            | 99       | 99       | 99                   | 99       | 99       | 99       | 99       | 99       | 98                    | 99           | 99                | 99       |
| 76                   | 99            | 99       | 99       | 99                   | 99       | 99       | 99       | 99       | 99       | 99                    | 99           | 99                | 99       |

Table A-4. Male (M), Female (F), Combined-Gender (C), and Youth Population (YP) Norms for the ASVAB Subtest Electronic Information (EI)

| <u>sss</u>                                                                                                                                                                                                                                                                 | <u>M</u> 1                                                                                                                                      | I0th gra<br><u>E</u>                                                                                                                                  | <u>de</u><br><u>C</u>                                    | <u>M</u> 1                                                                                               | l1th gra<br>E                                                                                                                                                                          | <u>de</u><br><u>C</u>                                                                             | <u>M</u>                                              | 12th gra<br><u>F</u>                                                                                        | de<br>C                                                      | <u>Po</u><br><u>M</u>                                                                  | stsecon<br><u>F</u>                                         | dary<br><u>C</u>                 | YP                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------------------------|-------------------------------------------------------------|----------------------------------|------------------------------------------|
| 22<br>23<br>24<br>25<br>26<br>27<br>28<br>29<br>30<br>31<br>32<br>33<br>34<br>55<br>36<br>37<br>38<br>39<br>40<br>41<br>42<br>43<br>44<br>44<br>45<br>46<br>47<br>48<br>49<br>50<br>51<br>51<br>55<br>55<br>56<br>56<br>56<br>56<br>56<br>56<br>56<br>56<br>56<br>56<br>56 | M 1 2 2 4 6 6 7 8 10 11 3 14 15 18 20 22 25 8 3 3 4 6 4 5 5 7 6 6 5 9 7 4 7 7 8 8 2 8 4 6 8 8 8 9 9 9 3 4 9 5 9 9 5 9 5 9 5 9 5 9 5 9 5 9 5 9 5 | IOH F 11 2 3 4 5 7 8 9 10 13 5 8 1 1 1 2 2 3 4 5 7 8 9 10 13 5 18 1 2 2 6 0 3 4 9 5 5 6 6 6 8 3 7 9 9 3 4 5 6 7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | <u>de</u> 1123456891021358144859681691334568991334566997 | M 1 1 1 1 2 2 3 4 5 5 7 7 9 10 2 13 7 19 1 23 27 31 34 8 4 4 7 3 9 6 4 7 7 7 9 8 8 5 8 7 9 9 9 3 9 5 9 5 | 11h F 1 1 2 2 3 3 4 5 6 8 9 10 13 16 8 1 1 1 2 2 3 3 4 5 6 8 9 10 13 16 8 2 2 3 3 4 4 5 6 8 9 10 13 16 8 2 2 3 3 4 4 5 5 7 2 8 8 8 9 1 3 5 6 6 7 7 9 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | <u>de</u> 111223345789113157024823714504666776914668899123566679999999999999999999999999999999999 | M 111122334578991011231568033483494855666937581485790 | 12th F<br>1 1 1 1 2 2 3 3 5 6 7 8 10 3 150 22 5 9 3 4 0 4 7 2 5 7 3 6 7 7 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | de C 1111122335678101136922594714606677258885688991235699935 | M 1 1 1 1 1 1 1 1 2 2 2 3 3 4 5 6 7 8 10 13 5 17 0 6 8 2 3 6 4 4 4 8 3 5 8 6 5 7 7 7 9 | E 111111123456791258361838999999999999999999999999999999999 |                                  | Y 11111222345678911316914494949494888891 |
| 63<br>64<br>65<br>66<br>67<br>68<br>69<br>70<br>71                                                                                                                                                                                                                         | 95<br>96<br>98<br>98<br>98<br>99<br>99                                                                                                          | 99<br>99<br>99<br>99<br>99<br>99                                                                                                                      |                                                          |                                                                                                          |                                                                                                                                                                                        |                                                                                                   |                                                       |                                                                                                             |                                                              | 82<br>86<br>87<br>89<br>91<br>92<br>92<br>93                                           | 99<br>99<br>99<br>99<br>99<br>99<br>99                      |                                  |                                          |
| 72<br>73<br>74<br>75<br>76<br>77<br>78<br>79                                                                                                                                                                                                                               | 99<br>99<br>99<br>99<br>99<br>99                                                                                                                | 99<br>99<br>99<br>99<br>99<br>99                                                                                                                      | 99<br>99<br>99<br>99<br>99<br>99                         | 99<br>99<br>99<br>99<br>99<br>99                                                                         | 99<br>99<br>99<br>99<br>99<br>99                                                                                                                                                       | 99<br>99<br>99<br>99<br>99<br>99                                                                  | 98<br>98<br>99<br>99<br>99<br>99                      | 99<br>99<br>99<br>99<br>99<br>99                                                                            | 99<br>99<br>99<br>99<br>99<br>99                             | 96<br>97<br>97<br>98<br>98<br>98<br>98                                                 | 99<br>99<br>99<br>99<br>99<br>99                            | 98<br>98<br>99<br>99<br>99<br>99 | 98<br>98<br>99<br>99<br>99<br>99         |

Table A-5. Male (M), Female (F), Combined-Gender (C), and Youth Population (YP) Norms for the ASVAB Subtest General Science (GS)

| <u>sss</u> | <u>1</u><br><u>M</u> | 0th gra  | ide<br><u>C</u> | <u>1</u><br>M | 1th gra  | ide<br>C | <u>1</u><br><u>M</u> | 2th gra<br>E | ide<br><u>C</u>      | <u>Po</u><br><u>M</u> | stsecor<br><u>F</u> | ndary<br><u>C</u> | ΥP       |
|------------|----------------------|----------|-----------------|---------------|----------|----------|----------------------|--------------|----------------------|-----------------------|---------------------|-------------------|----------|
| 24<br>25   | 1<br>2               | 1<br>1   | 1<br>1          | 1<br>1        | 1<br>1   | 1<br>1   | 1<br>1               | 1<br>1       | 1<br>1               | 1<br>1                | 1<br>1              | 1<br>1            | 1<br>1   |
| 26         | 2                    | 1        | 2               | 1             | 2        | 1        | 1                    | <u>i</u>     | 1                    | 1                     | 1                   | 1                 | 1        |
| 27         | 3                    | 2        | 2               | 2             | 2        | 2        | 1                    | 1            | 1                    | 1                     | 1                   | 1                 | 1        |
| 28<br>29   | 4<br>4               | 2<br>3   | 3<br>3          | 2             | 3<br>4   | 2<br>3   | 1<br>2               | 1<br>2       | 1<br>2               | 1<br>1                | 1<br>2              | 1<br>1            | 2<br>2   |
| 30         | 5                    | 4        | 5               | 3             | 5        | 4        | 3                    | 3            | 3                    | 1                     | 2                   | i                 | 2        |
| 31         | 6                    | 6        | 6               | 5             | 6        | 5        | 4                    | 4            | 4                    | 1                     | 2                   | 2                 | 3        |
| 32         | 8                    | 8        | 8               | 5             | 6        | 6        | 4                    | 4            | 4                    | 2                     | 2                   | 2<br>2            | 4        |
| 33<br>34   | 10<br>12             | 10<br>12 | 10<br>12        | 7<br>7        | 7<br>9   | 7<br>8   | 6<br>6               | 6<br>7       | 6<br>7               | 2<br>3                | 3<br>4              | 3                 | 5<br>7   |
| 35         | 14                   | 14       | 14              | 9             | 10       | 10       | 7                    | 9            | 8                    | 3                     | 6                   | 5                 | 8        |
| 36         | 15                   | 16       | 16              | 10            | 12       | 11       | 9                    | 11           | 10                   | 4                     | 6                   | 5                 | 9        |
| 37         | 18                   | 19       | 19              | 12            | 14       | 13       | 9                    | 14           | 12                   | 6                     | 10                  | 8                 | 12       |
| 38<br>39   | 20<br>23             | 24<br>28 | 22<br>25        | 14<br>16      | 17<br>19 | 16<br>17 | 10<br>12             | 17<br>19     | 14<br>16             | 7<br>8                | 12<br>14            | 9<br>11           | 13<br>15 |
| 40         | 26                   | 31       | 28              | 17            | 21       | 19       | 14                   | 22           | 18                   | 10                    | 16                  | 13                | 18       |
| 41         | 28                   | 35       | 32              | 20            | 24       | 22       | 16                   | 25           | 20                   | 12                    | 20                  | 16                | 20       |
| 42<br>43   | 32<br>35             | 38<br>42 | 35<br>38        | 22<br>25      | 27<br>31 | 24<br>28 | 18<br>21             | 29<br>31     | 23<br>26             | 13<br>17              | 24<br>29            | 19<br>23          | 23<br>26 |
| 44         | 38                   | 43       | 41              | 29            | 35       | 32       | 23                   | 34           | 29                   | 20                    | 32                  | 26                | 29       |
| 45         | 42                   | 48       | 45              | 32            | 39       | 35       | 27                   | 39           | 33                   | 23                    | 36                  | 30                | 32       |
| 46<br>47   | 44<br>49             | 52<br>54 | 48<br>51        | 34<br>40      | 43<br>47 | 38<br>43 | 30<br>35             | 42<br>49     | 36<br>42             | 28<br>31              | 41<br>45            | 35<br>39          | 36<br>39 |
| 48         | 53                   | 60       | 56              | 45            | 52       | 48       | 39                   | 53           | 46                   | 34                    | 50                  | 43                | 44       |
| 49         | 58                   | 66       | 62              | 48            | 57       | 52       | 42                   | 59           | 51                   | 38                    | 54                  | 46                | 48       |
| 50         | 63<br>67             | 73<br>76 | 68              | 52            | 61<br>67 | 57<br>62 | 46                   | 64           | 55<br>50             | 42                    | 60<br>65            | 51                | 52<br>55 |
| 51<br>52   | 67<br>72             | 76<br>80 | 71<br>76        | 57<br>61      | 67<br>70 | 62<br>66 | 50<br>54             | 69<br>73     | 59<br>64             | 44<br>48              | 65<br>69            | 55<br>59          | 55<br>59 |
| 53         | 75                   | 84       | 80              | 67            | 75       | 71       | 57                   | 78           | 67                   | 53                    | 73                  | 64                | 63       |
| 54         | 78                   | 87       | 82              | 69            | 79       | 74       | 60                   | 80           | 70                   | 59                    | 76                  | 68                | 67       |
| 55<br>56   | 80<br>83             | 88<br>90 | 84<br>86        | 72<br>75      | 81<br>83 | 76<br>79 | 65<br>68             | 83<br>85     | 74<br>76             | 61<br>67              | 79<br>83            | 71<br>76          | 70<br>74 |
| 57         | 85                   | 92       | 88              | 79            | 85       | 82       | 72                   | 86           | 79                   | 72                    | 86                  | 79                | 77       |
| 58         | 87                   | 94       | 90              | 82            | 88       | 85       | 75                   | 89           | 82                   | 75                    | 89                  | 82                | 80       |
| 59<br>60   | 89<br>90             | 95<br>97 | 92<br>93        | 86<br>88      | 90<br>92 | 88<br>90 | 79<br>81             | 89<br>91     | 84<br>86             | 80<br>83              | 91<br>92            | 86<br>88          | 83<br>85 |
| 61         | 92                   | 97       | 95<br>95        | 89            | 94       | 92       | 84                   | 94           | 89                   | 87                    | 93                  | 90                | 87       |
| 62         | 94                   | 98       | 96              | 91            | 96       | 93       | 86                   | 95           | 90                   | 90                    | 94                  | 92                | 89       |
| 63<br>64   | 95<br>95             | 98<br>99 | 96<br>97        | 92<br>95      | 97<br>97 | 94<br>96 | 88<br>91             | 96<br>98     | 92<br>94             | 92<br>95              | 95<br>96            | 94<br>96          | 91<br>93 |
| 65         | 96                   | 99       | 97<br>97        | 96            | 97<br>98 | 90<br>97 | 92                   | 98           | 9 <del>4</del><br>95 | 96                    | 98                  | 97                | 93<br>94 |
| 66         | 97                   | 99       | 98              | 97            | 99       | 98       | 93                   | 99           | 96                   | 96                    | 98                  | 97                | 95       |
| 67         | 98                   | 99       | 99              | 97            | 99       | 98       | 95<br>06             | 99           | 97                   | 97                    | 98                  | 98                | 96       |
| 68<br>69   | 99<br>99             | 99<br>99 | 99<br>99        | 99<br>99      | 99<br>99 | 99<br>99 | 96<br>97             | 99<br>99     | 98<br>98             | 98<br>98              | 99<br>99            | 99<br>99          | 97<br>98 |
| 70         | 99                   | 99       | 99              | 99            | 99       | 99       | 97                   | 99           | 98                   | 98                    | 99                  | 99                | 98       |
| 71         | 99                   | 99       | 99              | 99            | 99       | 99       | 98                   | 99           | 99                   | 98                    | 99                  | 99                | 99       |
| 72         | 99                   | 99       | 99              | 99            | 99       | 99       | 99                   | 99           | 99                   | 99                    | 99                  | 99                | 99       |

Table A-6. Male (M), Female (F), Combined-Gender (C), and Youth Population (YP) Norms for the ASVAB Subtest Mechanical Comprehension (MC)

|                  |          |          |          |          |          | •        |          |          | •                |               |          |          |                  |
|------------------|----------|----------|----------|----------|----------|----------|----------|----------|------------------|---------------|----------|----------|------------------|
|                  |          | 0th gra  |          |          | 1th gra  |          |          | 2th gra  |                  | Postsecondary |          |          | <u>YP</u>        |
| <u>sss</u>       | <u>M</u> | Ε        | <u>C</u> | <u>M</u> | <u>E</u> | <u>C</u> | <u>M</u> | E        | <u>C</u>         | <u>M</u>      | <u>E</u> | <u>C</u> |                  |
| 21               | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1                | 1             | 1        | 1        | 1                |
| 22               | 3        | 1        | 2        | 1        | 1        | 1        | 1        | 2        | 1                | i             | 1        | 1        | i                |
| 23               | 3        | 2        | 3        | - 1      | 2        | 2        | 1        | 3        | 2                | i             | i        | i        | 1                |
| 24               | 4        | 2        | 3        | 2        | 2        | 2        | 1        | 3        | 2                | i             | 1        | i        | i<br>1           |
| 25               | 4        | 4        | 4        | 2        | 3        | 2        | 1        | 3        | 2                | 1             | 2        | 1        |                  |
| 26               | 5        | 4        | 5        | 2        | 3        | 3        | 2        | 4        | 3                | i             | 2        | i        | 2                |
| 27               | 6        | 5        | 6        | 3        | 4        | 4        | 2        | 4        | 3                | 1             | 2        | 2        | 2                |
| 28               | 7        | 7        | 7        | 4        | 5        | 4        | 3        | 4        | 4                | 1             | 3        | 2        | 2<br>2<br>2<br>3 |
| 29               | 8        | 8        | 8        | 4        | 6        | 5        | 4        | 5        | 4                | 1             | 3        | 2        | 3                |
| 30               | 9        | 9        | 9        | 5        | 8        | 7        | 4        | 6        | 5                | 2             | 4        | 3        | 4                |
| 31               | 10       | 12       | 11       | 6        | 9        | 7        | 5        | 7        | 6                | 2             | 5        | 4        | 5                |
| 32               | 11       | 13       | 12       | 7        | 10       | 9        | 7        | 8        | 8                | 2             | 6        | 4        | 6                |
| 33               | 13       | 15       | 14       | 8        | 12       | 10       | 8        | 9        | 8                | 2             | 7        | 5        | 6                |
| 34               | 14       | 17       | 15       | 9        | 13       | 11       | 8        | 11       | 10               | 3             | 8        | 5        | 7                |
| 35               | 15       | 19       | 17       | 10       | 15       | 13       | 9        | 13       | 11               | 3             | 9        | 6        | 8<br>9           |
| 36<br>37         | 17<br>19 | 21<br>23 | 19<br>21 | 11<br>13 | 16<br>19 | 14<br>16 | 9<br>11  | 14<br>16 | 12<br>13         | 4<br>5        | 10<br>12 | 7<br>8   | 11               |
| 3 <i>1</i><br>38 | 20       | 26<br>26 | 23       | 14       | 21       | 18       | 12       | 18       | 15               | 5             | 13       | 9        | 13               |
| 39               | 22       | 29       | 26       | 15       | 26       | 20       | 14       | 20       | 17               | 6             | 15       | 11       | 14               |
| 40               | 24       | 31       | 27       | 16       | 29       | 22       | 15       | 22       | 19               | 7             | 17       | 12       | 16               |
| 41               | 26       | 34       | 30       | 17       | 32       | 24       | 17       | 25       | 21               | 8             | 20       | 14       | 18               |
| 42               | 29       | 38       | 33       | 18       | 35       | 27       | 18       | 28       | 23               | 9             | 24       | 17       | 20               |
| 43               | 31       | 41       | 36       | 21       | 40       | 30       | 19       | 33       | 26               | 12            | 29       | 21       | 23               |
| 44               | 34       | 45       | 39       | 24       | 44       | 34       | 22       | 37       | 29               | 15            | 33       | 25       | 25               |
| 45               | 37       | 51       | 44       | 27       | 48       | 37       | 24       | 41       | 33               | 19            | 39       | 29       | 29               |
| 46               | 40       | 56       | 48       | 29       | 51       | 40       | 27       | 46       | 36               | 21            | 43       | 32       | 32               |
| 47<br>48         | 44<br>49 | 59<br>65 | 52<br>57 | 34<br>39 | 57<br>62 | 45<br>51 | 29<br>32 | 52<br>57 | 40<br>44         | 23<br>26      | 49<br>54 | 36<br>41 | 36<br>40         |
| 48<br>49         | 49<br>54 | 70       | 62       | 39<br>44 | 62<br>67 | 55       | 32<br>36 | 64       | 50               | 29            | 63       | 47       | 40<br>45         |
| 50               | 60       | 75       | 67       | 51       | 71       | 61       | 41       | 71       | 56               | 35            | 68       | 52       | 50               |
| 51               | 64       | 80       | 72       | 55       | 78       | 66       | 46       | 78       | 62               | 41            | 73       | 58       | 55               |
| 52               | 67       | 85       | 76       | 59       | 82       | 71       | 52       | 83       | 67               | 47            | 77       | 63       | 60               |
| 53               | 72       | 88       | 79       | 64       | 86       | 75       | 59       | 86       | 72               | 51            | 82       | 67       | 65               |
| 54               | 76       | 91       | 83       | 69       | 89       | 79       | 64       | 89       | 76               | 56            | 85       | 72       | 69               |
| 55               | 80       | 93       | 86       | 73       | 92       | 82       | 68       | 92       | 80               | 61            | 89       | 76       | 73               |
| 56               | 83       | 95       | 89       | 79       | 94       | 86       | 72       | 94       | 83               | 65            | 93       | 80       | 77               |
| 57               | 85       | 97       | 91       | 82       | 95       | 88       | 76       | 95       | 85               | 68            | 95       | 82       | 79               |
| 58<br>50         | 88       | 98       | 93       | 85       | 96       | 91       | 78       | 97       | 87               | 74<br>70      | 96<br>07 | 86       | 82               |
| 59<br>60         | 90<br>92 | 98<br>99 | 94<br>95 | 88<br>89 | 97<br>98 | 92<br>93 | 80<br>82 | 97<br>98 | 89<br><b>9</b> 0 | 78<br>82      | 97<br>97 | 88<br>90 | 85<br>87         |
| 61               | 94       | 99       | 96       | 90       | 98       | 94       | 85       | 99       | 92               | 86            | 98       | 92       | 89               |
| 62               | 95       | 99       | 97       | 91       | 99       | 95       | 87       | 99       | 93               | 87            | 98       | 93       | 90               |
| 63               | 96       | 99       | 98       | 93       | 99       | 96       | 88       | 99       | 94               | 89            | 99       | 94       | 92               |
| 64               | 96       | 99       | 98       | 94       | 99       | 97       | 90       | 99       | 95               | 90            | 99       | 95       | 93               |
| 65               | 97       | 99       | 98       | 95       | 99       | 98       | 91       | 99       | 96               | 91            | 99       | 95       | 94               |
| 66               | 98       | 99       | 99       | 96       | 99       | 98       | 94       | 99       | 97               | 93            | 99       | 96       | 95               |
| 67               | 98       | 99       | 99       | 97       | 99       | 98       | 95       | 99       | 97               | 94            | 99       | 97       | 96               |
| 68               | 98       | 99       | 99       | 97       | 99       | 98       | 96       | 99       | 98               | 96            | 99       | 98       | 97               |
| 69               | 99       | 99       | 99       | 97       | 99       | 99       | 97       | 99       | 98               | 97            | 99       | 98       | 98               |
| 70<br>71         | 99       | 99       | 99       | 97       | 99       | 99       | 98       | 99       | 99<br>99         | 98<br>08      | 99       | 99<br>99 | 98<br>98         |
| 71<br>72         | 99<br>99 | 99<br>00 | 99       | 98<br>00 | 99       | 99       | 99<br>99 | 99<br>99 | 99               | 98<br>98      | 99<br>99 | 99       | 99               |
| 72<br>73         | 99       | 99<br>99 | 99<br>99 | 99<br>99 | 99<br>99 | 99<br>99 | 99       | 99       | 99               | 99            | 99       | 99       | 99               |
| 13               | 99       | 99       | 93       | 93       | 33       | 33       | 23       | 33       | 55               | 99            | 99       | 33       | 55               |

Table A-7. Male (M), Female (F), Combined-Gender (C), and Youth Population (YP) Norms for the ASVAB Subtest Math Knowledge (MK)

| <u>sss</u>                                               | <u>1</u><br><u>M</u>                               | 0th gr<br>E                                        | ade<br><u>C</u>                                    | <u>1</u><br><u>M</u>                               | 1th gr                                             | ade<br><u>C</u>                                    | <u>1</u><br><u>M</u>                               | 2th gr<br><u>F</u>                                 | ade<br><u>C</u>                                    | <u>Pos</u>                                         | tsecor<br>E                                        | ndary<br><u>C</u>                                  | <u>YP</u>                                          |
|----------------------------------------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|
| 23<br>24<br>25<br>26<br>27<br>28<br>29<br>30<br>31<br>32 | 1<br>2<br>2<br>3<br>3<br>4<br>5<br>5<br>7<br>8     | 1<br>1<br>1<br>1<br>2<br>2<br>2<br>3<br>4<br>5     | 1<br>1<br>2<br>2<br>2<br>3<br>4<br>4<br>5<br>7     | 1<br>2<br>2<br>3<br>3<br>4<br>4<br>4<br>4<br>5     | 1<br>1<br>1<br>2<br>2<br>3<br>3<br>4               | 1<br>1<br>1<br>2<br>3<br>3<br>4<br>4<br>4          | 1<br>1<br>1<br>2<br>2<br>3<br>3<br>4<br>4<br>4     | 1<br>1<br>1<br>1<br>2<br>3<br>3<br>4<br>4          | 1<br>1<br>1<br>1<br>2<br>2<br>3<br>3<br>4<br>4     | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>2          | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>2          | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>2          | 1<br>1<br>1<br>1<br>2<br>2<br>3<br>4<br>4          |
| 33<br>34<br>35<br>36<br>37<br>38<br>39<br>40             | 9<br>11<br>13<br>15<br>18<br>21<br>24<br>28        | 6<br>7<br>10<br>11<br>12<br>14<br>17<br>20         | 8<br>9<br>12<br>13<br>15<br>18<br>21<br>24         | 6<br>8<br>9<br>11<br>12<br>13<br>15                | 4<br>6<br>7<br>8<br>9<br>11<br>12                  | 5<br>7<br>8<br>9<br>11<br>12<br>14<br>16           | 4<br>4<br>5<br>6<br>7<br>9<br>12<br>13             | 5<br>8<br>9<br>11<br>12<br>14<br>16                | 5<br>7<br>8<br>9<br>11<br>13<br>14                 | 2<br>3<br>4<br>4<br>5<br>7                         | 2<br>2<br>2<br>3<br>4<br>5<br>6<br>8               | 2<br>2<br>2<br>3<br>4<br>5<br>7<br>9               | 5<br>7<br>8<br>10<br>11<br>13<br>15<br>18          |
| 41<br>42<br>43<br>44<br>45<br>46<br>47<br>48<br>49       | 31<br>33<br>36<br>39<br>43<br>46<br>51<br>56<br>61 | 24<br>28<br>31<br>34<br>37<br>40<br>44<br>49<br>52 | 28<br>30<br>33<br>37<br>40<br>43<br>48<br>52<br>57 | 19<br>21<br>24<br>26<br>29<br>33<br>38<br>42<br>47 | 16<br>19<br>23<br>26<br>29<br>32<br>35<br>38<br>42 | 18<br>20<br>23<br>26<br>29<br>33<br>37<br>40<br>45 | 14<br>15<br>17<br>20<br>24<br>26<br>28<br>32<br>36 | 19<br>21<br>24<br>27<br>29<br>32<br>35<br>39<br>43 | 16<br>18<br>20<br>24<br>26<br>29<br>32<br>35<br>39 | 11<br>14<br>16<br>18<br>21<br>26<br>31<br>34<br>37 | 11<br>13<br>16<br>20<br>24<br>27<br>31<br>34<br>37 | 11<br>13<br>16<br>19<br>23<br>27<br>31<br>34<br>37 | 21<br>24<br>27<br>30<br>35<br>38<br>41<br>44<br>47 |
| 50<br>51<br>52<br>53<br>54<br>55<br>56<br>57             | 64<br>68<br>73<br>75<br>80<br>82<br>85<br>86       | 56<br>60<br>64<br>69<br>75<br>78<br>83<br>86       | 60<br>64<br>69<br>72<br>77<br>80<br>84<br>86       | 51<br>55<br>59<br>64<br>68<br>71<br>74<br>77       | 45<br>49<br>52<br>59<br>62<br>66<br>71<br>74       | 48<br>52<br>56<br>61<br>65<br>68<br>72<br>75       | 40<br>45<br>49<br>53<br>59<br>63<br>66<br>69       | 48<br>51<br>54<br>57<br>61<br>65<br>69<br>72       | 44<br>48<br>51<br>55<br>60<br>64<br>68<br>71       | 41<br>46<br>52<br>55<br>60<br>65<br>70<br>73       | 43<br>48<br>51<br>56<br>59<br>65<br>70<br>76       | 42<br>47<br>52<br>55<br>59<br>65<br>70<br>74       | 50<br>54<br>57<br>60<br>63<br>67<br>69<br>73       |
| 58<br>59<br>60<br>61<br>62<br>63<br>64<br>65<br>66       | 89<br>91<br>93<br>96<br>97<br>98<br>98<br>98       | 89<br>91<br>94<br>96<br>97<br>98<br>98<br>99       | 89<br>91<br>94<br>96<br>97<br>98<br>98<br>99       | 80<br>83<br>87<br>89<br>91<br>94<br>96<br>97       | 77<br>82<br>85<br>87<br>91<br>94<br>96<br>97       | 79<br>83<br>86<br>88<br>91<br>94<br>96<br>97       | 71<br>74<br>79<br>83<br>85<br>89<br>91<br>93       | 75<br>80<br>83<br>86<br>90<br>92<br>93<br>96<br>97 | 73<br>77<br>81<br>84<br>88<br>90<br>92<br>95       | 77<br>82<br>85<br>90<br>91<br>94<br>95<br>97       | 80<br>84<br>89<br>92<br>94<br>96<br>97<br>99       | 78<br>83<br>87<br>91<br>93<br>95<br>96<br>98       | 77<br>81<br>84<br>88<br>91<br>93<br>94<br>96<br>97 |
| 67<br>68<br>69<br>70                                     | 99<br>99<br>99                                     | 99<br>99<br>99<br>99                               | 99<br>99<br>99<br>99                               | 98<br>99<br>99<br>99                               | 99<br>99<br>99<br>99                               | 98<br>99<br>99<br>99                               | 96<br>98<br>98<br>99                               | 99<br>99<br>99                                     | 98<br>99<br>99<br>99                               | 98<br>99<br>99<br>99                               | 99<br>99<br>99<br>99                               | 99<br>99<br>99<br>99                               | 98<br>98<br>99<br>99                               |

Table A-8. Male (M), Female (F), Combined-Gender (C), and Youth Population (YP) Norms for the ASVAB Subtest Paragraph Comprehension (PC)

| <u>sss</u>                                                                                                                                                                                                     | <u>1</u><br><u>M</u>                                                                     | 0th gra                                      | ide<br><u>C</u>                                             | <u>1</u><br><u>M</u>                      | 1th gra<br>E                                   | ide<br>C                                              | <u>1</u><br>M                                                                                                                      | 2th gra                                         | ide<br>C                                          | <u>Po:</u><br><u>M</u>                      | stsecor<br><u>F</u>                             | ndary<br><u>C</u>                                                                                                                                                 | YP                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------------------------------------------|-------------------------------------------|------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|---------------------------------------------------|---------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| 18<br>19<br>20<br>21<br>22<br>23<br>24<br>25<br>26<br>27<br>28<br>29<br>30<br>31<br>32<br>33<br>34<br>55<br>36<br>37<br>83<br>40<br>41<br>42<br>44<br>45<br>46<br>47<br>48<br>49<br>55<br>55<br>55<br>56<br>57 | M 1 2 3 4 5 7 8 9 10 12 14 16 19 20 32 4 6 8 1 5 5 5 7 6 6 2 6 6 6 7 7 7 7 8 8 4 7 9 9 2 | E 111233455789111141802246924826557269269470 | <u>C</u> 11234567801134689123581335914471475576648148258891 | M 111224567891123157801457045566371626889 | E 11111355566789111146892236924592570668377985 | <u>C</u> 11112355678911134579122569149255926695927827 | M 1 1 1 2 3 4 5 6 6 7 8 8 10 11 12 14 5 16 17 18 20 3 25 8 30 4 4 4 4 5 5 7 6 1 14 15 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18 | E 111122223344567890113617023693582469382726084 | <u>C</u> 1112234445667890112457913692469381507483 | M 11111123344566788011256881462933445566780 | E 111111111222234568891134702358159334507386948 | C 1 1 1 1 1 1 2 2 2 3 3 4 4 4 5 6 7 9 10 1 13 4 16 9 2 2 4 7 3 3 4 4 5 5 6 7 9 10 1 13 14 16 9 2 2 4 7 3 3 4 4 5 5 6 6 7 7 9 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 1 1 1 1 1 2 2 2 3 4 4 5 5 6 7 7 8 9 10 1 13 4 16 8 22 2 2 3 3 3 4 4 5 5 6 6 8 3 7 7 8 9 10 1 1 3 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| 58<br>59<br>60<br>61<br>62<br>63                                                                                                                                                                               | 94<br>95<br>96<br>97<br>98<br>99                                                         | 92<br>94<br>94<br>95<br>96<br>97             | 93<br>95<br>95<br>96<br>97                                  | 90<br>93<br>95<br>95<br>97                | 87<br>91<br>93<br>93<br>94                     | 89<br>92<br>94<br>94<br>96                            | 83<br>87<br>91<br>92<br>94                                                                                                         | 87<br>89<br>92<br>93<br>96                      | 85<br>88<br>91<br>93<br>95                        | 83<br>89<br>92<br>93<br>95                  | 82<br>86<br>89<br>91<br>93                      | 82<br>87<br>90<br>92<br>94                                                                                                                                        | 81<br>85<br>88<br>89<br>92                                                                                                         |
| 60<br>61<br>62                                                                                                                                                                                                 | 96<br>97<br>98                                                                           | 94<br>95<br>96                               | 95<br>96                                                    | 95<br>95                                  | 93<br>93                                       | 94<br>94                                              | 91<br>92                                                                                                                           | 92<br>93                                        | 91<br>93                                          | 92<br>93                                    | 89<br>91                                        | 90<br>92                                                                                                                                                          | 88<br>89                                                                                                                           |
| 66<br>67<br>68                                                                                                                                                                                                 | 99<br>99<br>99                                                                           | 99<br>99<br>99                               | 99<br>99<br>99                                              | 99<br>99<br>99                            | 98<br>99<br>99                                 | 98<br>99<br>99                                        | 98<br>99<br>99                                                                                                                     | 99<br>99<br>99                                  | 99<br>99<br>99                                    | 98<br>99<br>99                              | 97<br>98<br>99                                  | 98<br>98<br>99                                                                                                                                                    | 97<br>98<br>99                                                                                                                     |

Table A-9. Male (M), Female (F), Combined-Gender (C), and Youth Population (YP) Norms for the ASVAB Subtest Verbal (VE)

| <u>sss</u>                                                                                                                                                                                                                                                           | <u>1</u><br><u>M</u>                                                                                                     | Oth gra                                                                        | ade<br>C                                                                                                                        | <u>M</u>                                                                                                    | 11th gra<br>E                                     | ade<br>C                                                                                  | <u>M</u>                                                                                                                                                                                 | 12th gra<br>E                                                           | ade<br><u>C</u>                                                                                                                                                                   | <u>Po</u><br><u>M</u>                            | stsecoi<br><u>E</u>                                                                             | ndary<br><u>C</u>                                        | YP<br>1<br>1<br>1<br>1                                                                                                                         |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| 19<br>20<br>21<br>22<br>23<br>24<br>25<br>26<br>27<br>28<br>30<br>31<br>32<br>33<br>34<br>35<br>36<br>37<br>38<br>39<br>40<br>41<br>42<br>43<br>44<br>45<br>46<br>47<br>48<br>49<br>50<br>51<br>51<br>51<br>51<br>51<br>51<br>51<br>51<br>51<br>51<br>51<br>51<br>51 | M 1 2 3 3 4 5 6 7 8 102 147 191 223 335 37 40 43 46 49 51 56 59 56 68 71 75 78 16 88 99 99 98 98 98 98 98 98 98 98 98 98 | E 1123334567891124681258136824481560574836889999999999999999999999999999999999 | <u>C</u> 1 1 2 3 3 4 5 6 7 8 10 1 14 6 18 9 2 2 4 9 2 3 3 4 4 4 4 7 9 4 8 3 6 7 7 5 8 2 6 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | M 1 1 1 2 2 3 4 4 6 6 7 9 10 115 17 0 2 2 2 4 6 8 8 9 1 4 5 5 8 6 6 7 7 8 8 8 8 9 9 9 9 8 9 9 9 9 8 9 9 9 9 | E 12223334456789113580225914481660593771466023456 | <u>C</u> 12222334456781011469123683144482718587034567999999999999999999999999999999999999 | M 1 1 1 2 2 3 3 4 4 5 6 7 8 10 1 12 13 15 17 19 1 23 6 8 2 4 7 1 6 6 6 6 8 8 9 9 4 5 1 1 1 1 2 2 3 3 4 4 5 6 7 8 1 1 1 1 2 2 3 3 4 4 5 6 6 6 8 8 9 9 9 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | E 111112234445667810214170225833604582661660751447122258336058887123567 | <u>C</u> 1 1 1 1 2 2 2 3 4 4 5 5 6 7 8 10 1 12 14 17 19 22 4 27 33 4 7 2 5 6 6 7 7 8 10 11 2 14 17 19 22 4 4 5 5 6 6 7 7 6 1 8 8 7 9 9 5 6 10 10 10 10 10 10 10 10 10 10 10 10 10 | M 1111111222333556781146793582495665040492358995 | E 1 1 1 1 1 1 1 1 2 3 4 4 5 5 6 7 8 10 2 14 6 18 1 2 2 2 3 3 7 4 9 3 6 6 5 7 7 8 18 8 8 8 9 9 2 | <u>C</u> 11111111222334556780131579225826117160505047023 | 1 1 1 1 1 2 2 3 3 4 4 5 6 6 7 8 9 11 214 17 9 2 24 7 0 4 4 8 3 5 6 6 6 7 7 8 8 8 8 9 1 1 2 1 4 7 1 9 2 2 4 7 0 4 4 8 3 5 6 6 6 7 7 8 8 8 8 9 1 |  |  |
| 63<br>64<br>65<br>66<br>67<br>68                                                                                                                                                                                                                                     | 99<br>99<br>99<br>99<br>99                                                                                               | 99<br>99<br>99<br>99<br>99                                                     | 99<br>99<br>99<br>99<br>99                                                                                                      | 98<br>98<br>99<br>99<br>99                                                                                  | 97<br>97<br>98<br>98<br>99                        | 97<br>98<br>98<br>99<br>99                                                                | 96<br>97<br>98<br>99<br>99                                                                                                                                                               | 98<br>99<br>99<br>99<br>99                                              | 97<br>98<br>99<br>99<br>99                                                                                                                                                        | 96<br>96<br>98<br>98<br>99                       | 93<br>95<br>97<br>98<br>98<br>99                                                                | 94<br>96<br>97<br>98<br>99                               | 93<br>94<br>96<br>97<br>98<br>99                                                                                                               |  |  |

Table A-10. Male (M), Female (F), Combined-Gender (C), and Youth Population (YP) Norms for the ASVAB Subtest Word Knowledge (WK)

| <u>sss</u>                             | <u>1</u><br><u>M</u>                   | 0th gra                                | ide<br>C                               | <u>1</u><br>М                          | 1th gra                                | i <u>de</u><br><u>C</u>                | <u>1</u><br>M                          | 2th gra<br><u>F</u>                    | i <u>de</u><br>C                       | <u>Pos</u><br><u>M</u>                 | stsecor<br><u>F</u>                    | ndary<br><u>C</u>                      | YP                                     |
|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|
| 19<br>20<br>21<br>22<br>23<br>24       | 1<br>2<br>2<br>3<br>4<br>4             | 1<br>1<br>1<br>2<br>2<br>3             | 1<br>1<br>2<br>2<br>3<br>3             | 1<br>1<br>1<br>2<br>2<br>2             | 1<br>2<br>2<br>2<br>2<br>2             | 1<br>1<br>1<br>2<br>2<br>2             | 1<br>1<br>1<br>1<br>1                  |
| 25<br>26<br>27<br>28<br>29<br>30<br>31 | 4<br>6<br>7<br>7<br>9<br>11            | 4<br>4<br>5<br>7<br>7<br>8<br>10       | 4<br>5<br>6<br>7<br>8<br>9<br>11       | 2<br>2<br>3<br>4<br>5<br>6<br>7        | 3<br>4<br>4<br>5<br>6<br>8             | 3<br>4<br>4<br>5<br>6<br>7             | 2<br>2<br>3<br>3<br>3<br>3<br>5        | 1<br>2<br>2<br>3<br>4<br>4<br>5        | 2<br>2<br>3<br>3<br>4<br>5             | 1<br>1<br>2<br>2<br>2<br>2<br>3<br>3   | 1<br>1<br>2<br>2<br>3<br>3             | 1<br>1<br>2<br>2<br>2<br>2<br>3<br>3   | 2<br>2<br>3<br>3<br>4<br>4             |
| 32<br>33<br>34<br>35<br>36<br>37<br>38 | 14<br>16<br>18<br>21<br>24<br>27<br>30 | 11<br>14<br>16<br>19<br>23<br>26<br>29 | 13<br>15<br>17<br>20<br>24<br>26<br>29 | 7<br>9<br>10<br>13<br>15<br>18<br>22   | 9<br>10<br>13<br>15<br>17<br>20<br>23  | 8<br>10<br>11<br>14<br>16<br>19<br>23  | 6<br>8<br>9<br>11<br>12<br>14          | 6<br>7<br>8<br>10<br>12<br>14<br>18    | 6<br>7<br>8<br>10<br>11<br>13<br>16    | 3<br>4<br>5<br>5<br>6<br>8             | 3<br>4<br>4<br>5<br>7<br>8<br>9        | 3<br>4<br>4<br>5<br>6<br>7<br>9        | 5<br>6<br>7<br>9<br>10                 |
| 39<br>40<br>41<br>42<br>43<br>44<br>45 | 32<br>35<br>38<br>42<br>47<br>50<br>53 | 32<br>35<br>40<br>44<br>47<br>50<br>55 | 32<br>35<br>39<br>43<br>47<br>50<br>54 | 24<br>26<br>30<br>33<br>35<br>39<br>40 | 25<br>29<br>32<br>36<br>40<br>43<br>48 | 25<br>28<br>31<br>34<br>37<br>41<br>44 | 16<br>19<br>22<br>24<br>27<br>31<br>34 | 20<br>23<br>27<br>31<br>35<br>37<br>43 | 18<br>21<br>24<br>28<br>31<br>34<br>38 | 11<br>12<br>14<br>17<br>19<br>21<br>24 | 10<br>12<br>16<br>18<br>21<br>23<br>28 | 11<br>12<br>15<br>17<br>20<br>22<br>26 | 14<br>16<br>19<br>22<br>25<br>28<br>31 |
| 46<br>47<br>48<br>49<br>50<br>51       | 57<br>61<br>67<br>71<br>75<br>79       | 61<br>64<br>69<br>73<br>78<br>82       | 59<br>63<br>68<br>72<br>77<br>81       | 46<br>51<br>55<br>61<br>66<br>71       | 51<br>55<br>59<br>64<br>69<br>71       | 48<br>53<br>57<br>62<br>67<br>71       | 37<br>41<br>46<br>50<br>55<br>59       | 48<br>50<br>55<br>59<br>66<br>70       | 42<br>45<br>50<br>55<br>60<br>65       | 29<br>32<br>37<br>43<br>46<br>50       | 33<br>39<br>43<br>48<br>51<br>55       | 31<br>36<br>41<br>46<br>49<br>52       | 34<br>38<br>43<br>46<br>50<br>54       |
| 52<br>53<br>54<br>55<br>56<br>57<br>58 | 83<br>87<br>90<br>92<br>94<br>95       | 85<br>88<br>91<br>92<br>94<br>96       | 84<br>88<br>90<br>92<br>94<br>95       | 77<br>80<br>84<br>87<br>89<br>92<br>93 | 77<br>81<br>84<br>88<br>90<br>91<br>92 | 77<br>81<br>84<br>87<br>89<br>92<br>93 | 65<br>71<br>75<br>79<br>82<br>85<br>87 | 75<br>80<br>83<br>86<br>90<br>92<br>93 | 70<br>76<br>79<br>83<br>86<br>88<br>90 | 54<br>59<br>64<br>69<br>75<br>80<br>84 | 58<br>62<br>67<br>72<br>75<br>81<br>84 | 56<br>61<br>66<br>71<br>75<br>80<br>84 | 57<br>62<br>66<br>70<br>74<br>77<br>81 |
| 59<br>60<br>61<br>62<br>63<br>64<br>65 | 97<br>97<br>98<br>98<br>98<br>99       | 97<br>98<br>98<br>99<br>99<br>99       | 97<br>98<br>98<br>99<br>99<br>99       | 95<br>96<br>96<br>97<br>98<br>99       | 94<br>95<br>96<br>96<br>96<br>97<br>98 | 95<br>95<br>96<br>97<br>97<br>98<br>98 | 90<br>92<br>94<br>95<br>96<br>97<br>98 | 95<br>96<br>97<br>98<br>98<br>98       | 92<br>94<br>95<br>96<br>97<br>98<br>99 | 87<br>89<br>91<br>93<br>95<br>97<br>98 | 86<br>88<br>90<br>93<br>94<br>94       | 87<br>89<br>91<br>93<br>94<br>95<br>96 | 84<br>86<br>89<br>91<br>92<br>94<br>95 |
| 66<br>67<br>68<br>69<br>70<br>71       | 99<br>99<br>99<br>99<br>99             | 99<br>99<br>99<br>99<br>99             | 99<br>99<br>99<br>99<br>99             | 99<br>99<br>99<br>99<br>99             | 98<br>99<br>99<br>99<br>99             | 99<br>99<br>99<br>99<br>99             | 98<br>99<br>99<br>99<br>99             | 99<br>99<br>99<br>99<br>99             | 99<br>99<br>99<br>99<br>99             | 98<br>98<br>99<br>99<br>99             | 97<br>97<br>98<br>99<br>99             | 97<br>98<br>99<br>99<br>99             | 96<br>97<br>98<br>98<br>98<br>99       |

Table A-11. Male (M), Female (F), Combined-Gender (C), and Youth Population (YP) Norms for the ASVAB Math Skills Composite

| <u>sss</u>                                                                                                                                                                                                                                                                                   | <u>10</u><br><u>M</u> | 0th gra<br><u>F</u>                                                         | i <u>de</u><br>C     | <u>1</u><br><u>M</u> | 1th gra<br><u>F</u>                                                            | ade<br>C             | <u>1</u><br><u>M</u>       | 2th gra<br><u>F</u>                                            | ide<br><u>C</u>      | <u>Po:</u>           | stseco<br><u>F</u>   | ndary<br><u>C</u>    | YP                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------|----------------------|----------------------|--------------------------------------------------------------------------------|----------------------|----------------------------|----------------------------------------------------------------|----------------------|----------------------|----------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------|
| 21<br>22<br>23<br>24<br>25<br>26<br>27<br>28<br>30<br>31<br>32<br>33<br>34<br>35<br>36<br>37<br>38<br>39<br>40<br>41<br>42<br>43<br>44<br>45<br>46<br>47<br>48<br>49<br>50<br>51<br>51<br>55<br>56<br>57<br>58<br>56<br>56<br>56<br>56<br>56<br>56<br>56<br>56<br>56<br>56<br>56<br>56<br>56 |                       | E 1111223455689113147022681482563667779358889999999999999999999999999999999 |                      |                      | E 1122344456668810231517202371582461337777888789994678999999999999999999999999 |                      |                            | E 111122233345689102469902261447022833844702888888995699999999 |                      |                      |                      |                      | 1 1 1 1 1 2 2 3 3 3 4 5 5 6 8 9 11 15 17 9 2 2 5 8 2 3 3 4 4 4 7 0 4 8 2 6 6 7 7 7 7 8 8 8 4 7 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 |
| 69<br>70<br>71                                                                                                                                                                                                                                                                               | 99<br>99<br>99<br>99  | 99<br>99<br>99<br>99                                                        | 99<br>99<br>99<br>99 | 99<br>99<br>99<br>99 | 99<br>99<br>99<br>99                                                           | 99<br>99<br>99<br>99 | 97<br>97<br>98<br>98<br>99 | 99<br>99<br>99<br>99                                           | 98<br>99<br>99<br>99 | 98<br>99<br>99<br>99 | 99<br>99<br>99<br>99 | 99<br>99<br>99<br>99 | 98<br>98<br>99<br>99                                                                                                               |

Table A-12. Male (M), Female (F), Combined-Gender (C), and Youth Population (YP) Norms for the ASVAB Science and Technical Skills Composite

| <u>sss</u>                                                     | <u>1</u><br>М                                                                      | 0th gra                                                                             | i <u>de</u><br>C                                                              | <u>1</u><br><u>M</u>                                                                            | 1th gra                                                                            | i <u>de</u><br>C                                                                             | <u>1</u><br><u>M</u>                                                                | 2th gra                                                                        | <u>de</u><br>C                                                                               | <u>Pos</u><br><u>M</u>                                         | stsecor<br><u>F</u>                                                               | ndary<br><u>C</u>                                                           | ΥP                                                                                                                |
|----------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| SS 22 24 5 6 7 8 9 0 1 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 4 4 4 4 | M 12334568911231579124580338143936148827708884667999999999999999999999999999999999 | £ 112234579101126822692371449455668393569135678889999999999999999999999999999999999 | <u>C</u> 11234568910215703368334470556669377888889999999999999999999999999999 | <u>M</u> 11122334456891111346812324916259614735925880045567778888999999999999999999999999999999 | E 11223456689101146023695824715516628144702447788999999999999999999999999999999999 | <u>C</u> 11123445578910241119024803381667147188879134466778889999999999999999999999999999999 | <u>M</u> 11111223446781112131579133443825715946988889999999999999999999999999999999 | E 1111233455781121469125923627781847023568999999999999999999999999999999999999 | <u>C</u> 11112234456791121467023593360604826888899134467789999999999999999999999999999999999 | M 111111111122356791011357123504926166583778588999999999999997 | E 1111111123467811469472337055667783889934577888999999999999999999999999999999999 | <u>C</u> 111111111234558121489336947173811511111111111111111111111111111111 | 1 1 1 1 1 1 2 2 3 4 5 6 7 9 10 2 13 15 17 0 2 2 5 8 1 5 5 8 4 4 6 1 6 9 4 9 1 5 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 |
| 72<br>73<br>74                                                 | 99<br>99<br>99                                                                     | 99<br>99<br>99                                                                      | 99<br>99<br>99                                                                | 99<br>99<br>99                                                                                  | 99<br>99<br>99                                                                     | 99<br>99<br>99                                                                               | 98<br>98<br>99                                                                      | 99<br>99<br>99                                                                 | 99<br>99<br>99                                                                               | 98<br>98<br>99                                                 | 99<br>99<br>99                                                                    | 99<br>99<br>99                                                              | 99<br>99<br>99                                                                                                    |

Table A-13. Male (M), Female (F), Combined-Gender (C), and Youth Population (YP) Norms for the ASVAB Verbal Skills Composite

| <u>sss</u>                                                                                   | <u>1</u><br><u>M</u>                                                                               | 0th gra<br><u>F</u>                                                                                                         | ade<br>C                                                                                                                     | <u>1</u><br>M                                                                                                                   | 1th gra<br>E                                                                                       | ade<br>C                                                                                           | <u>1</u><br>M                                                                                                                                                                                    | 2th gra<br><u>F</u>                                                                                                                                                                           | ide<br><u>C</u>                                                                                                               | <u>Pos</u><br><u>M</u>                                                                                                                                                                                         | stseco<br><u>F</u>                                                                                 | ndary<br><u>C</u>                                                                                                                                                                        | ΥP                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42                      | 1 2 3 3 4 5 6 7 8 10 12 14 17 19 21 23 26 28 32 35 37 40 43 46                                     | 1<br>1<br>2<br>3<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>11<br>12<br>14<br>16<br>18<br>21<br>25<br>28<br>31<br>36<br>38<br>42 | 1<br>1<br>2<br>3<br>3<br>4<br>5<br>6<br>7<br>8<br>10<br>11<br>14<br>16<br>18<br>19<br>22<br>24<br>29<br>32<br>34<br>44<br>44 | 1<br>1<br>1<br>1<br>2<br>2<br>3<br>4<br>4<br>6<br>6<br>7<br>9<br>10<br>11<br>15<br>17<br>20<br>22<br>24<br>26<br>28<br>31<br>33 | 1 2 2 2 3 3 3 4 4 5 6 7 8 9 11 13 15 18 20 22 25 29 31 34                                          | 1 2 2 2 2 3 3 4 4 5 6 7 8 10 11 14 16 19 21 23 26 28 31 34                                         | 1<br>1<br>1<br>1<br>2<br>2<br>3<br>3<br>4<br>4<br>5<br>6<br>7<br>8<br>10<br>11<br>12<br>13<br>13<br>14<br>15<br>17<br>19<br>19<br>19<br>19<br>19<br>19<br>19<br>19<br>19<br>19<br>19<br>19<br>19 | 1<br>1<br>1<br>1<br>1<br>2<br>2<br>3<br>4<br>4<br>4<br>5<br>6<br>6<br>7<br>8<br>10<br>12<br>17<br>2<br>2<br>2<br>5<br>2<br>5<br>2<br>2<br>5<br>2<br>2<br>2<br>5<br>2<br>2<br>2<br>2<br>2<br>2 | 1<br>1<br>1<br>1<br>2<br>2<br>2<br>3<br>4<br>4<br>5<br>5<br>6<br>7<br>8<br>10<br>11<br>12<br>14<br>17<br>19<br>22<br>24<br>27 | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>2<br>2<br>2<br>3<br>3<br>3<br>5<br>5<br>6<br>7<br>8<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1 | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1        | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>2<br>2<br>2<br>3<br>3<br>4<br>5<br>5<br>6<br>7<br>8<br>10<br>10<br>11<br>11<br>11<br>11<br>11<br>11<br>11<br>11<br>11<br>11<br>11 | 1<br>1<br>1<br>1<br>1<br>1<br>2<br>2<br>3<br>3<br>4<br>4<br>5<br>6<br>6<br>7<br>8<br>9<br>11<br>12<br>17<br>19<br>19<br>19<br>19<br>19<br>19<br>19<br>19<br>19<br>19<br>19<br>19<br>19 |
| 43<br>44<br>45<br>46<br>47<br>48<br>49<br>50<br>51<br>52<br>53<br>54<br>55<br>56<br>57<br>58 | 49<br>51<br>56<br>59<br>65<br>68<br>71<br>75<br>77<br>81<br>86<br>88<br>91<br>93<br>95<br>96<br>97 | 44<br>48<br>51<br>56<br>60<br>65<br>70<br>74<br>78<br>83<br>86<br>88<br>90<br>93<br>94<br>95<br>97                          | 47<br>49<br>54<br>58<br>63<br>67<br>70<br>75<br>78<br>82<br>86<br>88<br>91<br>93<br>95<br>96<br>97                           | 38<br>40<br>44<br>48<br>52<br>58<br>61<br>65<br>69<br>72<br>77<br>80<br>86<br>88<br>91<br>94<br>95                              | 37<br>41<br>44<br>48<br>51<br>56<br>60<br>65<br>69<br>73<br>77<br>81<br>84<br>86<br>90<br>92<br>93 | 37<br>41<br>44<br>48<br>52<br>57<br>61<br>65<br>69<br>73<br>77<br>81<br>85<br>87<br>90<br>93<br>94 | 28<br>31<br>35<br>39<br>42<br>47<br>51<br>56<br>60<br>63<br>68<br>72<br>77<br>81<br>84<br>86<br>89                                                                                               | 33<br>36<br>40<br>45<br>48<br>52<br>56<br>61<br>66<br>70<br>75<br>81<br>84<br>87<br>91<br>92<br>93                                                                                            | 30<br>34<br>37<br>42<br>45<br>49<br>54<br>58<br>63<br>67<br>72<br>76<br>81<br>84<br>87<br>89<br>91                            | 19<br>23<br>25<br>28<br>32<br>34<br>39<br>45<br>49<br>55<br>60<br>65<br>70<br>74<br>80<br>84<br>89                                                                                                             | 18<br>21<br>25<br>28<br>33<br>37<br>42<br>49<br>53<br>56<br>61<br>65<br>70<br>76<br>81<br>84<br>86 | 19<br>22<br>25<br>28<br>32<br>36<br>41<br>47<br>51<br>56<br>60<br>65<br>70<br>75<br>80<br>84<br>87                                                                                       | 24<br>27<br>30<br>34<br>37<br>40<br>44<br>48<br>53<br>56<br>61<br>65<br>69<br>73<br>76<br>80<br>84                                                                                     |
| 60<br>61<br>62<br>63<br>64<br>65<br>66<br>67<br>68                                           | 98<br>98<br>98<br>99<br>99<br>99                                                                   | 97<br>97<br>99<br>99<br>99<br>99<br>99                                                                                      | 97<br>98<br>99<br>99<br>99<br>99<br>99                                                                                       | 96<br>97<br>98<br>98<br>98<br>99<br>99                                                                                          | 94<br>95<br>96<br>97<br>97<br>98<br>98<br>99                                                       | 95<br>96<br>97<br>97<br>98<br>98<br>99                                                             | 92<br>94<br>95<br>96<br>97<br>98<br>99                                                                                                                                                           | 95<br>96<br>97<br>98<br>99<br>99<br>99                                                                                                                                                        | 93<br>95<br>96<br>97<br>98<br>99<br>99                                                                                        | 92<br>93<br>95<br>96<br>96<br>98<br>98<br>99                                                                                                                                                                   | 88<br>90<br>92<br>93<br>95<br>97<br>98<br>98                                                       | 90<br>92<br>93<br>94<br>96<br>97<br>98<br>99                                                                                                                                             | 86<br>89<br>91<br>93<br>94<br>96<br>97<br>98                                                                                                                                           |